

7 FABRIC SEPARATIONS	Page 1 of 4
Division of Forensic Science  TRACE EVIDENCE TRAINING MANUAL	Amendment Designator:
	Effective Date: 29-March-2004
7 FABRIC SEPARATIONS	
<p><b>7.1 Objectives</b></p> <p>Through completion of this module the trainee will have developed and demonstrated theoretical knowledge and/or practical skills to:</p> <ul style="list-style-type: none"> <li>• Be conversant in fiber and fabric separation terminology;</li> <li>• Be conversant in manufacturing processes for fibers and fabrics;</li> <li>• Take appropriate notes;</li> <li>• Use a stereomicroscope properly;</li> <li>• Determine the physical and microscopic properties of a cut (sharp blade) and (dull blade);</li> <li>• Determine the physical and microscopic properties of a tear;</li> <li>• Determine the physical and microscopic properties of a puncture;</li> <li>• Determine the physical and microscopic properties of burns;</li> <li>• Determine the physical and microscopic properties of seam separations and normal wear; and</li> <li>• Determine the physical and microscopic properties of a fracture (cut/tear) match.</li> </ul> <p><b>7.2 Required Readings</b></p> <p>7.2.1 Costello, P. A. and Lawton, M. E., "Do stab-cuts reflect the weapon which made them", <i>Journal of Forensic Science Society</i>, 30 (2), 1990, pp. 89-95.</p> <p>7.2.2 Kirk, Paul L., <u>Crime Investigation</u>, Interscience Publishers, Inc., New York, 1953, pp. 124-135.</p> <p>7.2.3 Monahan, D. L. and Harding, H. W. J., "Damage to Clothing-Cuts and Tears", <i>Journal of Forensic Sciences</i>, 1990 35, (4): 901-912.</p> <p>7.2.4 Osterburg, James W., <u>The Crime Laboratory</u>, Indiana University Press, 1974; pp. 96-117.</p> <p>7.2.5 Saferstein, Richard, <u>Criminalistics: An Introduction to Forensic Science</u>, Prentice-Hall Inc., 1995, pp. 218, 462-466.</p> <p>7.2.6 Svensson, Arne and Otto Wendel, <u>Techniques of Crime Scene Investigation</u>, American Elsevier Publishing Company, Inc., 1972, pp 91, 92, 157-166.</p> <p>7.2.7 Taupin, J. M., "Clothing Damage Analysis and the Phenomenon of the False Sexual Assault", <i>Journal of Forensic Sciences</i>, 2000; 45 (3), pp. 568-572.</p> <p>7.2.8 Taupin, J. M., "Comparing the Alleged Weapon with Damage to Clothing-The Value of Multiple Layers and Fabrics", <i>Journal of Forensic Sciences</i>, 1999; 44 (1), pp. 205-207.</p> <p>7.2.9 Taupin, J. M., "Damage to a wire security screen: Adapting the Principles of Clothing Damage Analysis", <i>Journal of Forensic Sciences</i>, 1998; 43 (4), pp. 897-900.</p> <p>7.2.10 Taupin, J. M. "Testing Conflicting Scenarios-A role for Simulation Experiments in Damage Analysis of Clothing", <i>Journal of Forensic Sciences</i>, 1998; (4), pp. 891-896.</p> <p><b>7.3 Questions</b></p> <p>The trainee will provide written answers to the following questions:</p> <ul style="list-style-type: none"> <li>• What are the characteristics of a sharp cut and a dull cut?</li> <li>• What are the characteristics of a tear?</li> </ul>	

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<div data-bbox="297 268 1049 394"> <ul style="list-style-type: none"> <li>• What are the characteristics of a puncture?</li> <li>• What are the characteristics of a fracture match?</li> <li>• What are the characteristics of a burn?</li> <li>• What are the characteristics of seam separations and normal wear?</li> </ul> </div> <div data-bbox="152 426 461 455"> <p><b>7.4 Practical Exercises</b></p> </div> <div data-bbox="246 487 1542 1522"> <p>7.4.1 The trainer will discuss with the trainee how to take appropriate notes and what abbreviations are in standard use for fabric separation analysis.</p> <p>7.4.2 The trainer and the trainee will discuss the topics listed in the objectives as they relate to fiber and fabric terminology and manufacturing.</p> <p>7.4.3 The trainer will demonstrate the physical properties and microscopic characteristics of a cut (sharp blade) and (dull blade) using a variety of fabrics to include as a minimum: denim, woven other than denim and knit fabrics.</p> <p>7.4.4 The trainer will demonstrate the physical properties and microscopic characteristics of a tear using a variety of fabrics to include as a minimum: denim, woven other than denim and knit fabrics.</p> <p>7.4.5 The trainer will demonstrate the physical properties and microscopic characteristics of a puncture using a variety of fabrics to include as a minimum: denim, woven other than denim and knit fabrics.</p> <p>7.4.6 The trainer will demonstrate the physical properties and microscopic characteristics of a fracture match, both cut and torn, using a variety of fabrics to include as a minimum: denim, woven other than denim and knit fabrics.</p> <p>7.4.7 The trainer will demonstrate the physical properties and microscopic characteristics of burns in fabric using a variety of fabrics to include as a minimum: denim, woven other than denim and knit fabrics.</p> <p>7.4.8 The trainer will demonstrate the physical properties and microscopic characteristics of seam separations and normal wear using a variety of garments to include as a minimum: blue jeans, underwear, and outerwear.</p> <p>7.4.9 The trainer will review at least ten completed fabric separation case files with the trainee.</p> <p>7.4.10 The trainer will review current cases, as available, with the trainee.</p> <p>7.4.11 The trainee will produce, or attempt to produce, test separations using a variety of fabrics and implements to include as a minimum: sharp knife, dull knife, scissors, serrated knife, double-bladed knife, new razor blade, new scalpel blade, and tearing by hand. Record physical properties and microscopic characteristics.</p> <p>7.4.12 The trainee will be given evidence to analyze and report for at least four simulated forensic cases, one of which will contain a fracture match of fabric pieces.</p> </div> <div data-bbox="152 1554 370 1583"> <p><b>7.5 Evaluation</b></p> </div> <div data-bbox="246 1614 1438 1766"> <p>7.5.1 The trainer will review the written answers to the questions with the trainee.</p> <p>7.5.2 The trainer and the trainee will review and discuss the pertinent points of each of the required readings.</p> <p>7.5.3 Review of practical exercises.</p> </div> <div data-bbox="152 1797 493 1827"> <p><b>7.6 Supervised Casework</b></p> </div> <div data-bbox="246 1858 1497 1917"> <p>The trainee will work at least six forensic cases as a technician for a qualified fabric separation examiner. The trainer should ensure as much variety in the casework as is practicable.</p> </div>	

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<b>7.7</b>	<b>Forensic Significance of Fabric Separations</b>	
	The trainer and the trainee will discuss the interpretation of fabric separation evidence and its relevance and weight in reports and in testimony.	
<b>7.8</b>	<b>Report Writing</b>	
	The trainer will review and discuss with the trainee the standard report wording in Section 3.4 of the Trace Evidence Standard Operating Procedures.	
	The trainer will provide ten cases previously examined by other qualified fabric separation examiners for the trainee to review and discuss with the trainer.	
	The trainee will draft report wording as a part of the analysis of their training sets as well as when performing supervised casework.	
	Report writing will be evaluated throughout the training period by the trainer.	
<b>7.9</b>	<b>Fabric Separation Presentation and Oral Examination</b>	
	The trainee will prepare a presentation of approximately 20-30 minutes in length which they will present to a group consisting of qualified trace evidence examiners, the QA Coordinator, as available, and any Director that chooses to attend. The presentation may cover either: the forensic examination of fabrics for damage or a current topic from the forensic literature that has been approved by the Section Chief that is of interest to the forensic community.	
	The trainee will field questions regarding their presentation topic as well as questions related to any/all aspects of their fabric separation training.	
<b>7.10</b>	<b>Competency Evaluation and Mock Trial</b>	
7.10.1	As the trainee progresses through fabric separation training, they will begin to process training sets as they would for casework to include drafting a Certificate of Analysis. There will be a minimum of four of these "case" files completed prior to issuance of the final competency test.	
7.10.2	Using one or all of the "cases" from 7.10.1, the trainee will undergo a series of "mini-mock trial" practice sessions with qualified examiners from the Trace Evidence Section. It may be useful to include practice sessions with examiners from Sections other than Trace Evidence.	
7.10.3	The trainee will be provided with a final competency test for analysis. This test will mimic actual casework to the maximum extent possible and will include at least one fabric separation caused by mechanical damage, one fabric separation from natural wear. Additionally, this test will include at least one positive fracture match of fabric for those trainees who have not previously completed documented fracture match training.	
	The trainee will analyze the final competency test samples and issue a Certificate of Analysis based upon their findings. The trainee will be called upon to defend their results via testimony in a formal mock trial setting. The mock trial will typically be scheduled about two weeks after the fabric separation presentation and oral examination.	
7.10.4	The trainer and the trainee will review the mock trial video tape in a timely fashion.	
<b>7.11</b>	<b>Certification</b>	
	Upon successful completion of the training process, following Section 15.6 of the Division of Forensic Science, Quality Manual, the trainee will be issued a written certification memorandum.	

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<p><b>7.12 Reading List</b></p> <p>7.12.1 Costello, P. A. and Lawton, M. E., “Do stab-cuts reflect the weapon which made them”, <i>Journal of Forensic Science Society</i>, 30 (2), 1990, pp. 89-95.</p> <p>7.12.2 Kirk, Paul L., <u>Crime Investigation</u> (New York: Interscience Publishers, Inc., 1953).</p> <p>7.12.3 Monahan, D. L. and Harding, H. W. J., “Damage to Clothing-Cuts and Tears”, <i>Journal of Forensic Sciences</i>, 1990 35, (4), pp. 901-912.</p> <p>7.12.4 Osterburg, James W., <u>The Crime Laboratory</u>, Indiana University Press, 1974.</p> <p>7.12.5 Saferstein, Richard. <u>Criminalistics: An Introduction to Forensic Science</u>, Prentice-Hall Inc., 1995.</p> <p>7.12.6 Svensson, Arne and Otto Wendel, <u>Techniques of Crime Scene Investigation</u>, American Elsevier Publishing Company, Inc. 1972.</p> <p>7.12.7 Taupin, J. M., “Clothing Damage Analysis and the Phenomenon of the False Sexual Assault”, <i>Journal of Forensic Sciences</i>, 2000; 45 (3), pp. 568-572.</p> <p>7.12.8 Taupin, J. M., “Comparing the Alleged Weapon with Damage to Clothing-The Value of Multiple Layers and Fabrics”, <i>Journal of Forensic Sciences</i>, 1999; 44 (1), pp. 205-207.</p> <p>7.12.9 Taupin, J. M., Damage to a wire security screen: Adapting the Principles of Clothing Damage Analysis, <i>Journal of Forensic Sciences</i>, 1998; 43 (4), pp. 897-900.</p> <p>7.12.10 Taupin, J. M. Testing Conflicting Scenarios-A role for Simulation Experiments in Damage Analysis of Clothing, <i>Journal of Forensic Sciences</i>, 1998; (4), pp. 891-896.</p> <p style="text-align: right;">◀End</p>	